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EXAMINER	
CULLER, JILL E	
ART UNIT	**PAPER NUMBER**
2854	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,223	LUTZ, NORBERT	
	Examiner	Art Unit	
	Jill E. Culler	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30 and 32-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18,23-30,32-35 and 38* is/are rejected.

7)☒ Claim(s) *19-22,36 and 37* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,858,298 to Humal in view of U.S. Patent No. 5,979,308 to Kagi et al.

With respect to claim 1, Humal teaches an apparatus for producing a marking on a substrate, 6, comprising a replication apparatus having a replication surface, 32, and a device for producing radiation, 33, which co-operates with the replication apparatus, by the radiation being directed onto at least one irradiation region of the replication apparatus for producing at least one shaping region, and a counterpressure apparatus, 31, wherein a substrate is arranged between the replication apparatus and the counterpressure apparatus in order to shape the shaping region onto the substrate in a contact region between the replication apparatus and the substrate, producing shaping structures, and wherein the feed of the radiation for producing the shaping regions extends outside the substrate, wherein the replication surface is structured with a surface relief which is in the form of a negative for shaping structures producing a particular optical effect and that the shaping structures are in the form of diffractively or holographically acting surface structurings or matt structures for diffusely or directedly

scattering incident light, wherein a position of the impingement point of the radiation on the replication surface is controllable by a one-dimensional or multi-dimensional movement of the radiation and/or that the power density in relation to surface area of the radiation at the impingement point of the radiation on the replication surface is controllable. See column 9, lines 1-27 and Fig. 8.

Humal does not teach that a control sequence for actuation of the radiation-producing device is extendable over more than one operating cycle of the replication apparatus.

Kagi et al. teaches a control sequence for producing a marking on a substrate that is extendable over more than one operating cycle of the apparatus. See column 3, lines 25-42.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Humal to have control over more than one operating cycle of the apparatus, as taught by Kagi et al, in order to more efficiently produce markings on multiple substrates.

With respect to claim 2, Humal teaches the Poynting vector of the radiation upon impingement on the replication apparatus does not point onto the contact region and/or that the Poynting vector of the radiation upon impingement onto the replication apparatus points onto the contact region but the radiation does not reach the substrate in the contact region. See column 9, lines 1-27 and Fig. 8.

With respect to claim 6, Humal teaches the replication apparatus is a stamping punch or a stamping cylinder, in particular a rotating roller. See column 9, lines 1-27 and Fig. 8.

With respect to claim 7, although Humal does not explicitly teach that the rotating roller is of a length of between 500 mm and 2,500 mm and/or its periphery is between 500 mm and 1,500 mm, it would have been obvious to one having ordinary skill in the art at the time of the invention that the optimal dimensions would vary with the particular application and therefore could best be determined through routine experimentation.

With respect to claim 8, Humal teaches there is provided a control device for controlling the irradiation regions, in particular a freely programmable control device, wherein it is preferably provided that the control device is adapted for actuating the radiation-producing device. See column 9, lines 1-27 and Fig. 8.

With respect to claim 11, Humal teaches the radiation is directed onto the replication surface of the replication apparatus so that it impinges on the replication surface. See column 9, lines 1-27 and Fig. 8.

With respect to claim 12, Humal teaches the radiation is arranged parallel to the substrate and/or perpendicularly to the irradiation region of the replication apparatus. See column 9, lines 1-27 and Fig. 8.

With respect to claim 13, Humal teaches the replication apparatus has an inside surface which is parallel to and/or concentric with the replication surface and the radiation is directed onto the inside surface so that the radiation impinges on the inside surface. See column 9, lines 1-27 and Fig. 8.

With respect to claim 14, Humal teaches that arranged between the inside surface (60) and the replication surface is or are a metal film, in particular a film of nickel or a nickel compound, and/or an absorption layer and/or a heat-conducting layer and/or a transparent layer, in particular a plate or a cylinder which are transparent in relation to the wavelength of the radiation. See column 9, lines 1-27 and Fig. 8.

With respect to claims 15 and 33, Humal teaches a process for producing a marking on a substrate, 6, wherein energy in the form of radiation from a device, 33, producing radiation is used for producing at least one shaping region on a replication surface, 32, of a replication apparatus, and wherein the shaping region of the replication surface is shaped onto the substrate, forming shaping structures, by the replication apparatus contacting the substrate under pressure, and wherein the radiation for producing the shaping regions is fed outside the substrate, wherein the replication surface is structured with a surface relief which is in the form of a negative for shaping structures producing a particular optical effect and that the shaping structures are in the form of diffractively or holographically acting surface structurings or matt structures for diffusely or directedly scattering incident light, wherein a position of the impingement point of the radiation on the replication surface is controllable by a one-dimensional or multi-dimensional movement of the radiation and/or that the power density in relation to surface area of the radiation at the impingement point of the radiation on the replication surface is controllable. See column 9, lines 1-27 and Fig. 8.

Humal does not teach that a control sequence for actuation of the radiation-producing device is extendable over more than one operating cycle of the replication

apparatus, wherein this is a revolution of the replication roller or a stroke of the stamping punch.

Kagi et al. teaches a control sequence for producing a marking on a substrate that is extendable over more than one operating cycle of the apparatus. See column 3, lines 25-42.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Humal to have control over more than one operating cycle of the apparatus, as taught by Kagi et al, in order to more efficiently produce markings on multiple substrates.

With respect to claim 24, although Humal does not explicitly teach that the temperature of the replication surface is set to at least 100.degree. C., preferably at least 170.degree. C, it would have been obvious to one having ordinary skill in the art at the time of the invention that the optimal temperature would vary with the particular application and therefore could best be determined through routine experimentation.

With respect to claim 27, Humal teaches the radiation is directed onto the replication surface of the replication apparatus and/or that the radiation is introduced onto a surface remote from the replication surface. See column 9, lines 1-27 and Fig. 8.

With respect to claim 29, Humal teaches a replication roller is used as replication apparatus and that the introduction of radiation into the replication roller is effected at a first angular position of the replication roller and the contact of the replication roller with the substrate is effected at a second angular position of the replication roller. Although Humal does not explicitly teach that an intermediate angle which is different from

0.degree., preferably less than 180.degree., in particular less than 90.degree., is set between the first angular position and the second angular position in the direction of rotation of the replication roller, it would have been obvious to one having ordinary skill in the art at the time of the invention that the optimal size of the angle would vary with the particular application and therefore could best be determined through routine experimentation.

With respect to claim 30, Humal teaches the radiation acts on the replication apparatus over an area and/or in point form sequentially. See column 9, lines 1-27 and Fig. 8.

With respect to claim 35, Humal teaches an apparatus as set forth in claim 1 is used.

3. Claims 3-5, 9-10, 16-18, 23, 25-26, 28 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humal in view of Kagi et al., as applied to claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35 above, and further in view of U.S. Patent No. 3,758,649 to Frattarola.

With respect to claims 3-5, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except that there is provided an additional energy source which is preferably separate from the radiation-producing device, such that the temperature of the replication apparatus is adjustable at least in partial regions of the replication surface by means of the additional energy source, wherein the additional energy source is formed by a heating laser device and/or

an inductive heating device and/or a resistance heating device and/or a device for producing heat beams.

Frattarola teaches an apparatus for producing a marking on a substrate, 204, comprising an additional energy source, such that the temperature of the replication apparatus is adjustable at least in partial regions of the replication surface by means of the additional energy source, wherein the additional energy source is formed by a heating laser device and/or an inductive heating device and/or a resistance heating device and/or a device for producing heat beams. See column 4, lines 33-35 and Fig. 2.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have the additional energy source, as taught by Frattarola, in order to have better control over the temperature of the replication surface.

With respect to claim 9, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except for a cooling apparatus for cooling the replication surface, in particular partial regions of the replication surface, which is preferably in the form of a blower, gas flow cooling or a cooling roller.

Frattarola teaches a cooling apparatus, 230, for the marking device. See column 6, lines 40-50.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have a cooling apparatus, as

taught by Frattarola, to cool the replication surface in order to have better control over the temperature of the replication surface.

With respect to claim 10, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except the additional energy source is arranged within the replication apparatus.

Frattarola teaches the additional energy source is arranged within the replication apparatus. See column 4, lines 33-35 and Fig. 2.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have the additional energy source is arranged within the replication apparatus, as taught by Frattarola, in order to evenly heat the replication surface.

With respect to claims 16-18, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except that the replication apparatus is subjected to a temperature control effect at least in partial regions of the replication surface using an additional energy source which is preferably separate from the radiation-producing device wherein at least one heat combination region is formed on the replication surface by an energy input from the additional energy source and an energy input from the radiation-producing device and the shaping region is shaped, which corresponds to the heat combination region or which is complementary to the heat combination region.

Frattarola teaches a process for producing a marking on a substrate, 204, comprising subjecting a replication surface, 222, to a temperature control effect using a controllable energy source, 220. See column 4, lines 33-35 and Fig. 2.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have the additional temperature control effect of Frattarola to form a heat combination region on at least a part of a replication surface in order to have better control over the temperature of the replication surface.

With respect to claim 23, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except the replication surface is subjected to a homogenous temperature control effect completely or in surface portions prior to the energy input from the radiation-producing device.

Frattarola teaches a process for producing a marking on a substrate, 204, comprising subjecting a replication surface, 222, to a temperature control effect using a controllable energy source, 220. See column 4, lines 33-35 and Fig. 2.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have a homogeneous temperature control, using the temperature control effect of Frattarola, in order to have better control over the temperature of the replication surface.

With respect to claim 25, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except that the

temperature control of the replication surface is effected by electrical heating and/or by pre-heating radiation, in particular a pre-heating laser beam.

Frattarola teaches a temperature control of the replication surface effected by electrical heating and/or by pre-heating radiation, in particular a pre-heating laser beam. See column 4, lines 33-35 and Fig. 2.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have the temperature control as taught by Frattarola, in order to have more efficient heating of the replication surface.

With respect to claim 26, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except that the replication surface is cooled completely in partial regions after the shaping operation and/or prior to a following energy input from the radiation-producing device.

Frattarola teaches a cooling apparatus, 230, for the marking device. See column 6, lines 40-50.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have a cooling apparatus, as taught by Frattarola, to cool the replication surface in order to have better control over the temperature of the replication surface.

With respect to claim 28, Humal teaches that the radiation is introduced into the replication apparatus before and/or while the heat combination region resulting therefrom is in contact with the substrate. See column 9, lines 1-27 and Fig. 8.

With respect to claim 34, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, except the energy input from the radiation-producing device is introduced in the heat combination region by direct absorption and/or heat conduction.

Frattarola teaches a temperature control of the replication surface effected by electrical heating and/or by pre-heating radiation, in particular a pre-heating laser beam. See column 4, lines 33-35 and Fig. 2.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have the temperature control as taught by Frattarola, in order to have more efficient heating of the replication surface.

4. Claims 32 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humal in view of Kagi et al., as applied to claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35 above, and further in view of U.S. Patent No. 6,227,109 to Inoue.

With respect to claims 32 and 38, Humal teaches all that is claimed, as in the above rejection of claims 1-2, 6-8, 11-15, 24, 27, 29-30, 33 and 35, and that the radiation-producing device has a plurality of laser sources. See column 9, lines 57-64.

Humal does not teach that the laser sources are spaced from each other and are in the form of a diode laser array and individually actuable.

Inoue teaches an apparatus for producing a marking on a substrate having a plurality of laser sources, 2008, spaced apart from each other in the form of a diode laser array that are individually actuable. See column 28, lines 48-61.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Humal to have a plurality of individually actuable lasers in a diode array, as taught by Inoue, in order to produce a wider variety of marking patterns on a substrate.

Allowable Subject Matter

5. Claims 19-22 and 36-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 19, the prior art does not teach or render obvious a process as claimed, particularly including that the temperature replication surface is set to a plastic temperature range outside the heat combination region and a flow temperature range inside the heat combination region.

With respect to claim 20, the prior art does not teach or render obvious a process as claimed, particularly including that the temperature replication surface is set to a elastic temperature range outside the heat combination region and a plastic temperature range inside the heat combination region.

Response to Arguments

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill E. Culler whose telephone number is (571) 272-2159. The examiner can normally be reached on M-F 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jec

Jill E. Culler
Patent Examiner